

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 7028-6 (1987): Performance tests for complete, filled transport packages, Part 6: Compression test [TED 24: Transport Packages]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 7028 (Part 6) - 1987

Indian Standard

PERFORMANCE TESTS FOR COMPLETE, FILLED TRANSPORT PACKAGES

PART 6 COMPRESSION TEST

(*First Revision*)

Second Reprint DECEMBER 1997

UDC 621.869.88:620.16:620.173

© Copyright 1987

**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

Gr 2

October 1987

*Indian Standard***PERFORMANCE TESTS FOR
COMPLETE, FILLED TRANSPORT PACKAGES****PART 6 COMPRESSION TEST**

Transport Packages Sectional Committee. MCPD 18

*Chairman**Representing*

SHRI M. R. SUBRAMANIAN

Indian Institute of Packaging, Bombay

Members

SHRI P. V. NARAYANAN (<i>Alternate</i> to Shri M. R. Subramanian)	
CAPT C. P. ALEXANDER	Shipping Corporation of India Ltd, Bombay
CAPT N. CHAKRABORTI (<i>Alternate</i>)	
SHRI V. C. BHARGAVA	Directorate of Plant Protection, Quarantine and Storage, Faridabad
SHRI S. K. GHOSH (<i>Alternate</i>)	
SHRI S. G. BHAT	Tata Oil Mills Co Ltd, Bombay
SHRI M. L. GUPTA	Export Inspection Council of India, New Delhi
SHRI T. S. NARULA (<i>Alternate</i>)	
SHRI S. S. GUPTA	Bayer India Limited, Bombay
DR P. V. RAIKAR (<i>Alternate</i>)	
SHRI T. S. GADGIL	Bharat Heavy Electricals Limited, Bhopal
SHRI A. S. GHOSAL	Department of Explosives, Nagpur
SHRI S. K. BHARGAVA (<i>Alternate</i>)	
SHRI N. L. KASTURIA	Tata Engineering and Locomotive Co Ltd, Pune
SHRI A. H. BAKRE (<i>Alternate</i>)	
SHRI K. V. KRISHNAMURTHY	ITC Limited, Calcutta
SHRI A. DASS (<i>Alternate</i>)	
CAPT A. W. KIRTIKAR	Indian National Shipowners' Association, Bombay
SHRI N. D. KULKARNI	Indian Posts and Telegraphs Department, New Delhi
SHRI VIJAY KUMAR	Directorate General Factory Advice Service and Labour Institute, Bombay
SHRI P. B. VIGHNARJAN (<i>Alternate</i>)	
SHRI A. K. MAJUMDAR	Calcutta Port Trust, Calcutta
SHRI A. N. MEHTA	Research, Design and Standards Organization, (Ministry of Railways), Lucknow
SHRI B. M. CHOPRA (<i>Alternate</i>)	

(*Continued on page 2*)

© Copyright 1987

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

IS : 7028 (Part 6) - 1987

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI S. S. NEVREKAR	Air-India, Bombay
SHRI R. TEWARI (<i>Alternate</i>)	
SHRI H. S. UBEROI (<i>Alternate</i>)	
SHRI T. M. OBHAN	Indian Federation of Transport Operators, Bombay
SHRI HARKIRAT SINGH KOHLI (<i>Alternate</i>)	
SHRI M. R. PARANJPE	Sarabhai Chemical Ltd, Vadodara
SHRI N. SABHAPATI	Association of State Road Transport Under- takings, New Delhi
SHRI N. K. SHUKLA	Forest Research Institute and Colleges, Dehradun
SHRI O. P. SRIVASTAVA	Research and Development Organization (R & D), Ministry of Defence, New Delhi
SHRI S. N. SRIVASTAVA (<i>Alternate</i>)	
SHRI A. R. SUKUMARAN	Indian Telephone Industries Limited, Bangalore
SHRI S. NAGARAJAN (<i>Alternate</i>)	
SHRI B. L. RAINA, Director (MCPD)	Director General, BIS (<i>Ex-officio Member</i>)

Secretary

SHRI A. R. GULATI
Joint Director (MCPD), BIS

Indian Standard

PERFORMANCE TESTS FOR COMPLETE, FILLED TRANSPORT PACKAGES

PART 6 COMPRESSION TEST

0. FOREWORD

0.1 This Indian Standard (Part 6) (First Revision) was adopted by the Bureau of Indian Standards on 14 May 1987, after the draft finalized by the Transport Packages Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 This Indian Standard, first published in 1973, has been revised to bring it in line with the revised International Standard, ISO 2872-1985 'Packaging — Complete, filled transport packages — Compression test' published by the International Organization for Standardization (ISO). This revision incorporates the following technical changes:

- a) the specification of compression tester has been modified slightly (clause 3), and
- b) a new clause on 'package preparation' has been added.

0.3 The compression test may be used to assess the performance of complete, filled transport packages in terms of strength or of the protection offered to the contents when subjected to compressive forces. It may be performed either as a single test to investigate the effects (deformation, collapse or failure) of this hazard or as part of sequence of tests designed to measure the ability of a package to withstand a distribution system that includes a compression hazard.

0.3.1 A method of test using a compression tester to determine the stacking resistance of a package is given in IS : 7028 (Part 9)-1987*.

1. SCOPE

1.1 This standard (Part 6) specifies two methods of testing complete, filled transport packages for compression resistance.

*Performance tests for complete, filled transport packages: Part 9 Stacking test using compression tester (*first revision*).

2. PRINCIPLE

2.1 Placing of the test package between the platens of a compression tester, and compressing; the load and platen displacement being recorded until failure occurs; or predetermined values for load or displacement are reached.

3. APPARATUS

3.1 Compression Tester — Motor driven, mechanical or hydraulic, platen-type, capable of applying load through uniform movement of one or both platens at a relative speed of 10 ± 3 mm/min.

3.1.1 The platens shall be:

- a) flat, so that when placed horizontally the difference in height between the lowest and the highest points does not exceed 1 mm;
- b) dimensioned so as to extend over the whole area of the panels with which they are in contact;
- c) rigid, so as not to deform by more than 1 mm at any point when the tester is applying a load of 75 percent of its maximum rating, either to a centrally placed 100 mm \times 100 mm \times 100 mm block having sufficient strength to accept this load without failure, or to four similar blocks placed at the four corners, in the case of swivel-mounted platens.

3.1.1.1 One platen shall remain horizontal, within 2 parts in 1 000 at all times during the test.

3.1.1.2 The other platen shall be either rigidly mounted so as to remain horizontal within 2 parts in 1 000 at all times during the test, or be held by a universal joint at its centre and so be free to tilt in any direction.

3.1.1.3 The working surfaces of platens suitable for testing packages with a length or width or diameter greater than 1 000 mm may be locally recessed for fixing boats, etc.

3.2 Recording Device — With a percentage of error for loads not exceeding ± 2 percent of the load and an accuracy of platen displacement of ± 1 mm.

4. PACKAGE PREPARATION

4.1 The test package shall normally be filled with its intended contents. However, simulated or dummy contents may be used on condition that the dimensions and physical properties of such contents shall be as close as practicable to those of the intended contents.

4.2 Ensure that the test package is closed normally, as if ready for distribution. If simulated or dummy contents are used, ensure that the normal method of closure is still employed.

5. CONDITIONING

5.1 The package shall be conditioned in accordance with one of the conditions described in IS : 7031-1987*.

6. PROCEDURE

6.0 Whenever possible the test shall be carried out in the same atmospheric conditions as used for conditioning, where this is critical to the materials or application of the package. In other circumstances, the test shall be carried out in atmospheric conditions which are as near as practicable to those used for conditioning.

6.1 Method 1

6.1.1 Place the test package centrally on the lower platen of the test machine (3.1), in the predetermined attitude.

6.1.2 Apply the load by relative movement of the platens at 10 ± 3 mm/min until the predetermined value is reached or until premature collapse.

In measuring deformation, the datum zero point shall be taken as the reading corresponding to a load of 220 N.

6.2 Method 2 — Where it is desired to measure the ability of a complete, filled transport packages to resist external compressive loads applied to opposite edges or corners of the package, the procedure is the same as in Method 1, but it is essential to use a tester in which the upper platen is not free to tilt.

7. TEST REPORT

7.1 The test report shall include the following particulars:

- a) reference to this standard;
- b) number of replicate packages tested;
- c) full description of the packages, including dimensions, structural and material specifications of the package and its fittings cushioning, blocking, closure or reinforcing arrangements;
- d) description of contents, if simulated or dummy contents were used, full details shall be given;

*Method of conditioning of complete, filled transport packages (*first revision*).

IS : 7028 (Part 6) - 1987

- e) gross mass of the package and net mass of contents, in kilograms;
- f) relative humidity, temperature and time of conditioning; temperature and relative humidity of test area at time of test; whether these values comply with the requirements of IS : 7031-1987*;
- g) the attitude in which the package was tested, using the method of identification given in IS : 7030-1973†;
- h) load imposed, in newtons, and the duration of time of the package under load;
- j) location of points on packages and stage of test at which measurements were made;
- k) type of apparatus used, including whether the tester was mechanically or hydraulically operated and whether or not the upper platen was rigidly mounted;
- m) any deviations from the test methods in this standard;
- n) a record of the result, including load/platen displacement recording, with any observations which may assist in correct interpretation;
- p) date of the test; and
- q) signature of tester.

*Method of conditioning for testing of complete, filled transport packages (*first revision*).

†Method of identification of parts for complete, filled transport packages.

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402

Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha

(Common to all Offices)

Telephone

Central Laboratory:

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

8-77 00 32

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, Behind Marol Telephone Exchange, Andheri (East),
MUMBAI 400093 832 92 95

Branch Offices::

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,
BANGALORE 560058 839 49 55

Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003 55 40 21

Plot No. 62-63, Unit VI, Ganga Nagar, BHUBANESHWAR 751001 40 36 27

Kalaikathir Buildings, 670 Avinashi Road, COIMBATORE 641037 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 8-28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 8-71 19 96

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 20 10 83

E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001 37 29 25

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001 23 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 23 05

Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005 32 36 35

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 6 21 17

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square,
BANGALORE 560002 222 39 71